

LPRSA 17-mile RI/FS  
EPA Comments on CPG's Feasibility Study Work Plan, Revision 2, dated January 31, 2014

No.	Page No.	Specific Comments
1	Section 1, Page 1-1, Footnote 1	The statements made after first sentence in the footnote are editorializing and should not be included. The footnote incorrectly states that Maxus and Tierra are PRPs. Occidental is the PRP.
2	Section 1.1.1, Page 1-2	For consistency and clarity, EPA prefers the OU designations in the text are replaced with "Lister Avenue," "LPRSA," or "Newark Study Area."  This same comment also applies to page 1-3 as well.
3	Section 1.1.1, Page 1-2	Please omit the following statement from the FSWP: "The delay by respondents responsible for the major dioxin source in the river allowed dioxin to migrate throughout the LPRSA."
4	Section 1.1.1, Page 1-3, First bullet	The last few sentences of this bullet, beginning with "In 2011, OCC entered into..." are incorrect. The AOC is correctly referenced in the first line of the bullet point paragraph and was entered into in 2008. Please revise.  EPA suggests including the following language: "In July 2011, OCC (through Tierra Solutions, Inc.) began the removal under Phase I of 40,000 cy of the most elevated dioxin contaminated sediments from the LPR in a 2-acre area in the immediate vicinity of the Lister Avenue Site. An additional removal of 160,000 cy of LPR sediments from an adjacent shoreline area on either side of the Phase I removal action is currently unscheduled."
5	Section 1.1.1, page 1-4, First paragraph	Please revise the statement regarding the updated schedule for completion of capping for RM 10.9.
6	Section 1.1.2, Page 1-4, Footnote 2	Please revise or omit. The most recent agreement with the G-14 companies has actually expired and the wording should be in the past tense. NOAA and USFWS will need to review language further if included in next submission.

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7	Section 1.1.2, Page 1-4, Second paragraph	Please revise the statement to clarify (and avoid confusion) that while EPA is conducting TMDL studies, it is doing that apart from the LPRRP. EPA's role in the LPRRP is pursuant to CERCLA, not CWA.
8	Section 1.1.3, Pages 1-4 to 1-5:	Please make the following revisions:  Alternative 3: add "partial" before "restoration"  Alternative 4: delete description and replace with "dredging of portions of the lower 8.3 miles (adding up to 220 acres) to a depth of 2.5 ft, with placement of an engineered cap over the dredged portions. FFS Alternative 4 has no provisions for restoration of the navigation channel."
9	Section 1.2.1, Page 1-6	Section 1.2.1 of the FSWP states "for the purposes of the baseline ecological risk assessment (BERA), baseline human health risk assessment (HHRA), and FS, background will refer to concentrations of contaminants found in the surface water, sediment, and tissue collected from background locations."  While this statement is not inaccurate, it should be noted that EPA's background policy requires that the baseline risk assessment retain all constituents that exceed risk-based screening concentrations and address site-specific background issues at in the Risk Characterization section of the risk assessment.  Please revise to state: "For the purposes of the FS, background will refer to the concentrations of contaminants found in the surface water, sediment and tissues collected from background locations."
10	Section 1.2, Page 1-6	Please revise the definition of background as it conflates background and reference area.
11	Section 1.2.1, page 1-7	Please provide a definition for COPECs. Note, EPA recognizes that COPECs were mentioned at the end of the COPC definition.
12	Section 1.2.1, Page 1-7	The definitions section should include a definition of "to be considered" regulatory or policy based factors (TBCs).
13		The concepts/definitions for "remedial action level" (RAL), and "surface weighted average concentrations" (SWACs) require a reference within the context of Superfund Remedial Actions. In addition, prior to approval for development and use of RALs and SWACs in this study, clarification is

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	Section 1.2.1	<p>needed on the underlying mechanism for their development, along with their connection to Remedial Action Objectives, risk-based threshold concentrations (RBTC) and Preliminary Remediation Goals (PRGs) within the context of the Superfund Program and this project.</p> <p>Please note that the RAL definition that the concept and application is still under development and that inclusion of RALs has not been approved by EPA for inclusion in the FS, but will be further evaluated upon submission of interim FS technical memorandums. Please see specific comment #48 for further discussion on this topic.</p>
14	Section 1.2.1, Page 1-7	<p>This section states that "PRGs will be expressed as sediment concentrations for the risk drivers, and will be established considering risk-based threshold concentrations (RBTCs, ARARs, background concentrations, and PQLs)."</p> <p>Further clarification is needed, in that protective tissue-based concentrations will also be needed for guiding remedial goals and measuring remedy success through long term monitoring.</p>
15	Section 1.2.1, Page 1-8	<p>A narrow interpretation of the guidance has been provided in the "risk driver" definition.</p> <p>EPA's Role of Background in the CERCLA Cleanup Program, dated April 26, 2002 states COCs are the hazardous substances, pollutants, and contaminants that, at the time of the risk assessment are found to be the risk drivers or those that may actually pose unacceptable human or ecological risks. COCs typically drive the need for a remedial action. Typically, for human health, the risk drivers exceed the goal of protection for cancer (<math>1 \times 10^{-6}</math>) or an HI=1. Based on EPA's review, the definition of risk driver should be that which is provided in the referenced document, which can be found here: (<a href="http://www.epa.gov/oswer/riskassessment/pdf/role.pdf">http://www.epa.gov/oswer/riskassessment/pdf/role.pdf</a>)</p> <p>While the risk assessment has yet to be finalized, it is premature to discuss COCs in the FS. COCs are discussed in the Proposed Plan and ROD. At this stage, it would be more appropriate to reference COPCs, which have yet to be determined.</p>
16	Section	<p>In the second paragraph, second sentence it says that "some of the data collected by others and prior to the..." LPRSA RI will be used to support RI evaluations and refers to Table 1-2. It is unclear if the list provided is a list of examples or an exhaustive list? Please clarify in the text.</p>

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	1.2.2, Page 1-9, 1-10	Additionally, since EPA did not review or approve the QAPP for collection of the 2011 Lister Avenue Joint Defense Group sediment cores, CPG will need to demonstrate that the data meet EPA QA/QC and data usability standards if included.
17	Section 1.2.2, Page 1-10	Please remove the phrase "the substantive treatability study requirements of the AOC and SOW have been met through" and instead state that "several bench-scale tests, pilot tests, and removal actions have been undertaken to date by...."
18	Section 1.2.3, Page 1-11	Under the NCP (40CFR §300.430(e)(9)(iii)(C)), the magnitude of residual risk from remaining untreated waste at the conclusion of remedial activities should be assessed. Therefore, a bullet should be added requiring the characterization (volume, toxicity, mobility, and propensity to bioaccumulate) of untreated waste that is left in-situ. This would be in addition to the surficial sediment characterization (bullet 5).
19	Section 1.2.3, Page 1-11	<p>Among the items listed, the fifth bullet states: "Estimating volumes and areas of surficial sediment with concentrations of COCs above RALS".</p> <p>Until the underlying definition and concept of RALs are understood and found to be appropriate for use on this project, the estimates of contaminated sediment areal extent in need of remediation should be based on the predicted ability of the remedy to meet risk-based PRGs.</p> <p>Please further clarify in the text how RALs relate to, and differ from, PRGs.</p>
20	Section 1.2.4, Page 1-12, Bullets	<p>Please revise to list relevant points from Sediment Guidance without reaching conclusions at this time about how these relate to LPRSA.</p> <p>Please omit the word "constraints" in the second set of bullets.</p>
21	Section 1.2.5, Page 1-14	In the first sentence, please revise "COCs" to "COPCs." They don't become COCs until the Proposed Plan or ROD.
22	Section 2.1, page 2-1	<p>Please omit the last sentence of the first paragraph, quoted directly below, because it is not supported by data or literature citations in the FSWP.</p> <p>"A distinguishing characteristic of the LPR is its elevated levels of 2,3,7,8-TCDD in sediments, which is atypical of most other urban rivers."</p>

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23	Section 2.1, Page 2-1	<p>The second paragraph requires numerous revisions. EPA recommends using the following language:</p> <p>The Diamond Alkali site was placed on the National Priorities List (NPL) in September 1984 due primarily to 2,3,7,8-TCDD contamination detected in on-property soils. The Diamond Alkali facility was located at 80 and 120 Lister Avenue in Newark, New Jersey, adjacent to approximately RM 3.5 of the Passaic River. Various companies manufactured chemicals such as pesticides and phenoxy herbicides, including the primary components used to make the military defoliant Agent Orange, at this location over the years. The upland site underwent several remedial actions under the oversight of NJDEP and EPA between 1984 and 2004 (USEPA 2008; Tierra 2008). It was a significant source of 2,3,7,8-TCDD and DDT to the river [<i>, and some investigators have concluded that it was the dominant source of 2,3,7,8-TCDD to the river (Bopp et al. 1991, 1998; Chaky 2003; Hansen 2002)]</i>.</p> <p>Please delete the fourth sentence of the 2<sup>nd</sup> paragraph of this section, starting with "Several investigators have since concluded...."</p>
24	Section 2.1, Page 2-2 and Figure 2-1	Elevations discussed in the text and shown in figures should be in consistent units. Suggestion is for feet as opposed to meters.
25	Section 2.2, p. 2-2, last paragraph on page:	This is a relatively simplistic presentation of a varied set of riverside land uses and should be revised. While "most" of the marshes, etc. have been filled in or dredged, the statement leaves the impression that there are none when in fact there are lots of mudflats and many access points to the river. Please revise.
26	Section 2.2, page 2-4	<p>The environmental setting description would be greatly improved by integrating language from the revised RARC, October 2013, Section 1.1. such as, "Adjacent land use is predominantly industrial in the lower River Miles [RMs] (near Newark Bay) and starts to become more commercial, residential, and recreational near RM 4. Land use is increasingly residential and recreational above RM 8."</p> <p>Additionally, "The upper portion of the LPRSA riverbank (from RM 7 to RM 17.4) is primarily comprised of bulkhead and/or riprap with overhanging vegetation. Many municipalities and counties along the Lower Passaic River (LPR) have published master plans that call for the expansion and improvement of parks and open space along the river, which, if implemented, will lead to greater access to the river and improved ecological habitat in the future (Borough of Rutherford and CMX 2007; City of Newark 2010; City of Newark et al. 2004; Clarke Caton Hintz and Ehrenkrantz Eckstut &amp; Kuhn 1999, 2004; Heyer Gruel 2002,</p>

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		2003). The shift in the use of the waterfront, with increased public access and recreational use, will be upstream of Sherwin Williams (approximately at RM 3.6). RM 0 to RM 2 will remain active for commercial use into the future, and the stretch from RM 2 to 3.6 will likely be developed into Portfields/Brownfields.”
27	Section 2.2.2, Pages 2-4 to 2-6	<p>This section focuses on describing certain ecosystem conditions (salinity, dissolved oxygen, turbidity, land use, invasive species) which are not formally covered by (or the intent of) Superfund and the NCP. Although these conditions should be considered, they are not expected to factor directly into development of either the risk assessment or remedial alternatives evaluation, which are both focused on addressing Superfund-related chemical discharges.</p> <p>On page 2-5, in the second full paragraph, the statement is too strong. EPA does not agree with the statement that “many species of benthic invertebrates...are excluded from certain portions of the LPRSA because of the salinity gradient.” It is EPA’s understanding that many species have been found to travel farther up and downriver than the salinity gradients might predict, because the salinity gradients themselves move with the tides.</p> <p>Section 2.2.2 requires significant editing and a more detailed review to approve. As this section may result in multiple iterations the CPG may elect to omit Section 2.2.2, when viewed in the context of what information is needed for a FSWP.</p>
28	Section 2.2.3, Page 2-7	Please omit the last sentence as it is anomalous.
29	Section 2.2.3, Page 2-7	Before pore water sample results from the RM10.9 TCRA are used to make conclusions about the rest of the 17-mile LPRSA, an evaluation will need to be made whether the RM10.9 data are representative of those other areas.
30	Section 2.2.4, Page 2-7	Please omit the first paragraph of this section as it is outside the scope of the LPRSA FS and potentially confusing to the reader.
31	Section 2.2.4, Page 2-7	Please revise the last sentence of the second paragraph to state that contribution of background concentrations “may be important for refining....”
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	Section 2.3, Pages 2-8 to 2-15	Based on the review of Section 2.3, Conceptual Site Model, EPA recommends this section is omitted from the FSWP. As this section will likely result in multiple iterations, the CPG may elect to omit Section 2.3, when viewed in the context of what information is needed for a FSWP.  Given that EPA recently received the draft preliminary CSM and is currently reviewing the document, comments on the CSM will be submitted separately.
33	Section 3, Page 3-1	The first sentence in the second paragraph seems to describe a generic process, but is really about the LPRSA FS, so instead of referring to "a site" it would be more accurate to say:  "The development of RAOs and their role in establishing the basis for setting PRGs/RGs for the LPRSA FS will be shaped by several additional specific considerations, including ARARs, RBTCs, background concentrations of COPCs and COPECs in relevant environmental media, and (where applicable) limitations of analytical chemistry data (e.g., laboratory PQLs)."
34	Section 3, Pages 3-1 and 3-2 (first paragraph)	The verbiage in the Final RGs (second bullet) where it states: "may take into account additional considerations, such as the uncertainty in the risk assessments or models used to characterize the site" is inaccurate. Please revise or omit.
35	Section 3.1, Page 3-2, First paragraph	Please include a reference to the time frame under which RAOs can be met.
36	Section 3.1, Page 3-2	EPA will not accept RAOs which are limited to certain chemicals at this point. As such, the RAOs shall not be defined by the contaminant 2,3,7,8-TCDD. Also, please include an RAO for surface water quality.
37	Section 3.2, Page 3-2	The third bullet, which states "background concentrations, if RBTCs are lower than background concentrations." Please note that this is not a yes-no consideration. Depending on the nature of the site, and the location selected as "background," in some instances background concentrations may not be a constraining feature.
38	Section 3.2.2, Page 3-3	It should be noted in this section that PRGs based on RBTCs will be established at $1 \times 10^{-6}$ for carcinogens and a Hazard Quotient of 1 for non-carcinogens.
39		It should be noted in the FSWP that background will be considered in the risk characterization portion of

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	Section 3.2.3, Page 3-4	<p>the baseline human health and ecological risk assessments.</p> <p>In the second paragraph, the last sentence needs to be modified to indicate that background will be taken into consideration with ARARs and risk-based threshold concentrations, as well as fate and transport modeling to choose the appropriate PRG.</p>
40	Section 3.3.3	<p>The proposed metrics seem overly restrictive, given that the risk assessment has not yet been completed. Therefore, language should be added to make clear that other metrics could be developed in the future as necessary, and the metrics themselves should be worded more generally, as in the example below:</p> <p>Short- and long-term projections of surface sediment COPC and COPEC concentrations, which are relevant to risk projections for the exposure pathways are being evaluated in the risk assessments.</p>
41	Section 3.3, Page 3-5	<p>Due to uncertainties in predictions of future sediment, surface water and tissue concentrations, performance metrics should also include estimates of sediment concentrations shortly following implementation of remedial activities (i.e., without consideration of future reductions in contaminant concentrations due to monitored natural recovery).</p> <p>In addition to the use of model simulations to develop estimates of future sediment, surface water and tissue concentrations, empirical lines of evidence should be utilized to qualitatively assess the effectiveness of monitored natural recovery.</p>
42	Section 4.1, Page 4-1	<p>The FSWP should make a distinction between institutional controls (ICs) and engineering controls (ECs) and note that they are not the same. ICs are legal and/or administrative measures (e.g., fish advisory or community awareness program) and ECs are physical and/or engineering measures (e.g., carp management program).</p>
43	Section 4.1, Page 4-1,	<p>Please include the continuation/enhancement of fish advisories in the IC bullet. Also, consider adding other ICs for capping or other options, as appropriate.</p>
44	Section 4.1, Page 4-2	<p><i>Ex situ</i> treatment should also consider thermal treatment.</p>
45	Section 4.2, Page 4-4:	<p>Reference to the carp harvest pilot study should be removed unless (or until) EPA receives further communication about the study, as was discussed on January 29, 2014 and per EPA's letter to Bill Hyatt on March 5, 2014. Furthermore, inclusion of this study is not appropriate on a list of studies that have been performed, since to EPA's knowledge it has not.</p>



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46	Section 5.1, Page 5-1	In addition to the bulleted list, considerations for <i>in situ</i> and <i>ex situ</i> treatment should be included such as the results of treatability studies and the expected effectiveness of <i>in situ</i> treatment based on available literature and contaminant type.
47	Section 5.2, Page 5-1	Instead of the overly general statement "At many sites," it would be more useful to list specific sites for which this is a true statement. Note that the list need not be exhaustive, just enough to provide the reader with examples to refer to.
48	Section 5.2, Pages 5-1 to 5-2	<p>EPA would like to further discuss the concept and application of RALs in the LPRSA 17-mile FS. In the interim FS technical memorandums it would be helpful to include a discussion of other NPL sites which have used RALs and the "knee of the curve" approach. Please also provide a comparative analysis for determining RALs using a "knee-of-curve" approach and an exposure pathways and risk thresholds approach. Additionally, further clarification will need to be provided regarding how SWACs and target areas will be determined.</p> <p>While more details on the RAL approach are needed to approve and review the concept, there is uncertainty with inclusion of a process that may rely on the identification of a point of diminishing returns, if the risk is still not within the accepted risk range. At this time, EPA cannot approve the concept and application of RALs in the FS until further information is provided.</p> <p>In resubmission of the draft FSWP please include the following language to Section 5.2:</p> <p>The RAL concept and application is still under development. Inclusion of RALs has not been approved by EPA for inclusion in the FS, but will be further evaluated by the Agency upon submission of interim FS technical memorandums.</p>
49	Section 5.3, page 5-2 to 5-3	As stated above, the statement and/or paragraph should revised so that 2,3,7,8-TCDD is not the only focus.
50	Section 5.3, page 5-3	In the last paragraph before Section 5.4, the conclusion regarding evidence indicating that other sources may limit the achievable benefit of active remediation should be omitted as this cannot be determined at this time.
51		The second sentence in the introduction paragraph regarding the core set of alternatives will be based on the three major approaches for management of contaminated sediments is premature at the workplan stage.

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	Section 6, Page 6-1, First paragraph	It is unclear whether in this draft FS workplan, the authors are limiting the evaluation to three "major" approaches and if so, if that means other approaches have screened out outside of the process. If this not in fact the case, the language should revised to provide clarified. If it is in fact the case, it is not appropriate at the workplan stage to screen other processes out.  The alternative approaches will be determined after the appropriate FS processes have been completed, which include the completion of the risk assessment, the identification of ARARs, the establishment of RAO and PRGs, and the complete screening of technologies based on the established RAOs and PRGs. Consistent with EPA guidance, during the screening step, remedial alternatives should be evaluated based on their effectiveness, implementability and cost.
52	Section 7.1, page 7-1 to 7-2	Please omit the word "recycling" in the discussion of reduction of toxicity, mobility, and volume through treatment.
53	Section 7.1, page 7-2	The modifying criteria are not limited to modifying "aspects" of the preferred remedy, which is implied in the first sentence of the first paragraph underneath the modifying criteria header. The sentence should be revised to reflect that modifying criteria are considered by EPA in remedy selection.
54	Section 8, page 8-1	Please revise to reflect the sequence of interim FS deliverables as outlined in EPA's letter to the CPG on February 18, 2014.
55	Section 8.1, page 8-1, end of first paragraph	The draft FS is not slated for the general public's review. Therefore, please remove or revise the text which states, "...and may require further revision depending upon state and public comment."
56	Section 8.1, Page 8-1	The development of PRGs to be presented in Section 4 will require the use of the bioaccumulation model. It would be useful to include a summary of the bioaccumulation model in Section 4 and have Section 5 focus on the linked hydrodynamic, sediment transport modeling and bioaccumulation model that will be used to develop future estimates of sediment, surface water and biota tissue concentrations.
57		Section 6 of the FS Report should describe and present the basis for the spatial scale over which the FS evaluation will be performed. The evaluation of effectiveness should consider a range of exposure areas

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	Section 8.1, Page 8-2	that considers the range of receptors evaluated in the baseline human health and ecological risk assessments. This will ensure that any evaluation of MNR identifies smaller areas of the site where MNR is not expected to be effective and risks to smaller home range receptors remain.
58	Section 8.1, Page 8-2, Last bullet	The proposed FS table of content includes a conclusion section. This section should be removed. An executive summary section should be provided at the beginning of the FS report.